

Remarks

Reconsideration and allowance of the subject application are respectfully solicited.

Claims 1-8 and 10 are now pending in the application, with Claims 1, 6 and 10 being independent. Claim 9 has been cancelled without prejudice. Claim 10 has been amended herein.

Applicants note with appreciation the indication that Claims 7 and 8 recite allowable subject matter. These claims were objected to for being dependent upon rejected base claims. However, these claims will not be rewritten in independent form at this time because independent Claim 6, on which they depend, is believed to be allowable for the reasons discussed below.

Claim 10 was rejected under 35 U.S.C. § 112, first paragraph, as allegedly not being enabled by the description. In particular, the Examiner suggested that the specification does not enable the feature of plasticizing and smoothing the surface opposite the surface which comes into contact with the image receiving layer. The Examiner suggests that such phrase means "that the surface is not yet in contact." Without conceding this point and solely to expedite prosecution, Claim 10 has been amended to recite --the surface which is in contact . . . --. Reconsideration and withdrawal of the § 112, first paragraph, rejection are requested.

Claim 10 was rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,210,581 (Kuzuya) in view of U.S. Patent No. 4,865,675 (Yamamoto et al.) and Japanese Laid-Open Patent Application No. 10-44605 (Nakanishi). Claims 1-4, 6,

9 and 10 were rejected under § 103 as being unpatentable over U.S. Patent No. 5,306,381 (Nakazawa et al.) in view of U.S. Patent No. 5,521,002 (Sneed), Yamamoto et al. and Nakanishi. Claim 5 was rejected under § 103 in further view of U.S. Patent No. 4,864,324 (Shirota et al.). These rejections are respectfully traversed.

As is recited in independent Claim 10, the present invention relates to a process for forming images including the steps of conducting recording on a recording medium provided with an image-receiving layer, laminating a laminating film comprising a thermoplastic film onto the image-receiving layer and plasticizing and smoothing the surface of the laminating film that is opposite to the surface which is in contact with the image-receiving layer with heating and pressurizing means to bond a back side of the thermoplastic film onto the image-receiving layer.

Kuzuya relates to an image recording apparatus capable of image surface laminating. A lamination unit laminates a film on at least one surface of an image receiving member. As understood by Applicants, the lamination treatment is merely for improving durability of the formed image. Further, Kuzuya only discloses employing a PET film as the laminate film.

Kuzuya does not disclose or suggest laminating a laminating film comprising a thermoplastic film onto an image-receiving layer and plasticizing and smoothing the surface of the laminating film that is opposite to the surface which is in contact with the image-receiving layer with heating and pressurizing means to bond a backside of the thermoplastic film onto the image-receiving layer, as is recited in independent Claim 10.

Thus, Kuzuya fails to disclose or suggest important features of the present invention recited in Claim 10.

Yamamoto et al. describes a hot pressure adhesion treatment process and apparatus for imparting glossiness to images using a transfer releasable laminate film. The lamination film comprising a thermoplastic resin on a substrate is laminated on an image followed by heating and pressing treatment, and thereafter the substrate of the lamination film is peeled off to expose the glossy surface, thereby completing lamination treatment of the printed product. (Col. 3, line 43 through col. 4, line 2). Therefore, Applicants submit that the glossiness of the final laminated product is not obtained by flattening the surface of the substrate through heating and pressing treatment, but rather obtained by the smoothness of the surface intended to be the surface of laminated product after peeling off the substrate, that is, the surface that had been in contact with the peeled substrate. Therefore, Yamamoto et al. also fails to disclose or suggest plasticizing and smoothing a surface of a laminating film that is opposite to a surface which is in contact with the image receiving layer with heating and pressurizing means to bond a backside of the thermoplastic film onto the image receiving layer, as is recited in independent Claim 10.

Nakanishi relates to gloss imparting treatment for thermal recording paper. As understood by Applicants, when recording a cyan image, in particular, on a thermal recording paper comprising a thermal cyan color developing layer, a thermal magenta color developing layer, a thermal yellow color developing layer and a protective layer laminated on a support in the listed order, the energy required for recording is remarkably large due to the low thermal sensitivity of the thermal cyan color developing layer, so that the thermal

head reaches a high temperature. As a result, the outermost protective layer, which comes into contact with the thermal head, is softened and unevenness is caused on the surface due to being scratched by the thermal head. Nakanishi, however, solves such a problem by bringing a surface of the thermal recording paper after recording into contact with a mirror-like surface and conducting a heating and pressing treatment. Applicants submit that in Nakanishi, it is essential that the protective layer be laminated on the thermal color developing layers of the thermal recording paper in advance; the thermal recording paper is subjected to the heating and pressing treatment to smooth the unevenness of the surface caused in the recording operation.

The Examiner suggests that it would have been obvious to modify Kuzuya with the teachings of Yamamoto et al. and Nakanishi. In particular, the Examiner suggests that it would have been obvious to enhance the glossiness of the protective PET film laminated on the image receiving layer in Kuzuya by plasticizing and smoothing the surface of the film based on the teachings of Yamamoto et al. and Nakanishi. However, Applicants respectfully submit that one of ordinary skill in the art would not look to Nakanishi to modify the teachings of Kuzuya or Yamamoto et al. For example, as discussed above, in Nakanishi the protective layer is laminated on the thermal color developing layers in advance, a feature that is essential to such thermal recording paper, and later the thermal recording paper is subjected to heating and pressing treatment to smooth the unevenness on the surface caused by the recording operation. In contrast, Kuzuya and Yamamoto et al. teach providing a laminating film on an image-formed product to form a new layer on the surface. Therefore, Nakanishi relates to a technology

completely different from that of Kuzuya or Yamamoto et al. and would not be readily combinable.

Nevertheless, even assuming, arguendo, that Kuzuya could be modified by the teachings of Yamamoto et al. and Nakanishi, the combination would still not result in the claimed invention. That is, in combining Kuzuya with the teachings of Yamamoto et al., one of ordinary skill in the art at most would arrive at peeling off the PET film of Kuzuya as taught in Yamamoto et al. to improve glossiness; there is no suggestion in any reference of improving glossiness of the PET film by heating and pressing treatment. Namely, Applicants submit that the PET film of Kuzuya is considered a heat resistant substrate rather than a thermoplastic material.

Therefore, none of the citations, whether taken individually or in combination, disclose or suggest laminating a laminating film comprising a thermoplastic film onto an image-receiving layer, and plasticizing and smoothing the surface of the laminating film that is opposite to the surface which is in contact with the image-receiving layer with heating and pressurizing means to bond a back side of the thermoplastic film onto the image receiving layer, as is recited in independent Claim 10.

Independent Claim 10 is believed to be patentable over the citations of record.

As is recited in independent Claim 1, the present invention relates to a process for forming images including the step of conducting recording on a recording medium provided with an image-receiving layer. The image-receiving layer contains particles having a diameter of 0.1 to 10 μm for imparting a matted appearance to the

surface of the image-receiving layer. The process further includes the steps of laminating a laminating film comprising a thermoplastic film without a backing layer onto the image-receiving layer and plasticizing and smoothing the surface of the thermoplastic film that is opposite to the surface in contact with the image-receiving layer with heating and pressurizing means to bond a back side of the thermoplastic film onto the image-receiving layer.

As is recited in independent Claim 6, the present invention relates to an apparatus for forming images, which includes an ink-jet head for recording on a recording medium, a laminate section for laminating a laminating film comprised of a thermoplastic film without a backing layer onto the recording medium on which recording has been conducted and heating and pressurizing means for plasticizing and smoothing the thermoplastic film by heating and pressurizing and bonding a back side of the thermoplastic film onto an image-receiving layer of the recording medium. The surface roughness (Ra) of the surface of the heating and pressurizing means that comes into contact with the thermoplastic film is $3\mu\text{m}$ or less.

The laminating apparatus in Nakazawa et al. uses a two-layer laminate film in which a heat-fusible adhesive is applied to an upper or lower surface of a transparent film. However, Applicants submit that Nakazawa et al. does not disclose or suggest plasticizing and smoothing a thermoplastic film, an important feature of the present invention recited in independent Claims 1 and 6.

Sneed describes a matte type ink jet film using fillers to provide surface texture, with such fillers having a particle size of 0.1 to 25 μm . However, Sneed is not

believed to remedy the deficiencies of Nakazawa et al. noted above with respect to the independent claims.

As discussed above, Yamamoto et al. describes laminating a thermoplastic resin on a substrate followed by heating and pressing treatment. The substrate of the lamination film is peeled off to expose the glossy surface. Since the glossy surface is obtained after peeling off the substrate, Yamamoto et al. also does not disclose or suggest plasticizing and smoothing a thermoplastic film by heating and pressurizing.

While Nakazawa et al. and Yamamoto et al. teach laminating an image-formed product, Nakanishi describes the protective layer being laminated before image forming. Any unevenness of the surface of the recording paper caused during recording is thereafter smoothed. Therefore, one would not look to Nakanishi to modify the citations discussed above.

Shirota et al. relates to a color image forming method and its ink and discloses a laminate film composed of a plurality of layers. Nevertheless, Shirota et al. is not believed to teach those features of the independent claims noted above as lacking in the previous citations.

Accordingly, independent Claims 1 and 6 are also patentable over the citations of record.

Reconsideration and withdrawal of the § 103 rejections are respectfully requested.

For the foregoing reasons, Applicants respectfully submit that the present invention is patentably defined by independent Claims 1, 6 and 10. Dependent Claims 2-5,

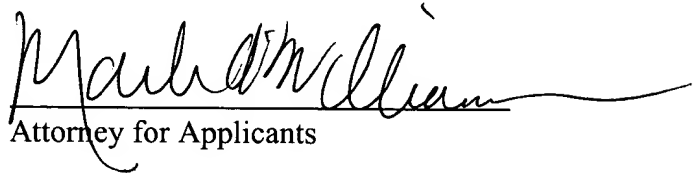
7 and 8 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims. Individual consideration of the dependent claims is requested.

This Amendment After Final Rejection is not believed to raise new issues, is an earnest attempt to advance prosecution and reduce the number of issues, and is believed to clearly place this application in condition for allowance. This Amendment was not earlier presented because Applicants earnestly believed that the prior Amendment placed the subject application in condition for allowance. Accordingly, entry of this Amendment under 37 CFR 1.116 is respectfully requested.

Applicants submit that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action, and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,


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